

PANELS ■ FACINGS ■ CURTAIN WALLS

PRECAST WHITE CONCRETE

Allentown City Hall and Police
Administration Building.
Architects: Everett Associates.
Contractors: E. C. Machin, Inc.
Precast Concrete: Formigli Sales
Company, Philadelphia.

Atlas White Portland Cements



1.



2.



3.

1. College of Engineering, Rutgers State University, New Jersey.
Architects: Frank Grad & Sons.
Contractor: Carl Buhr.
Precast Concrete: Eastern Schokcrete Corp., New York.

2. Nebraska State Education Association Building, Lincoln.
Architects & Engineers: Davis & Wilson.
Contractor: George Cook Construction Co.
Precast Concrete: Nebraska Prestressed Concrete Co., Lincoln.

3. Pipestone County Hospital, Pipestone, Minn.
Architects: Fasth-Hillstrom & Horty, Inc.
Contractor: Bosshart Construction.
Precast Concrete: Molin Concrete Products Co., St. Paul, Minn.

4. Detroit Bank & Trust Building.
Architects: Harley, Ellington, Cowin & Stirton, Inc.
Contractors: Minskoff-Detroit Construction Corp.
Precast Concrete: Pre-Cast Concrete Products Co., Marysville, Mich.

5. Doctor's Office Building, New England Deaconess Hospital, Boston.
Architect: Gustave Hagen.
Contractor: George B. H. Macomber Company.
Precast Concrete: Cambridge Cement Stone Company, Allston, Mass.

6. Westgate Towers, Cleveland.
Architect: William Dorsky.
Contractor: R. M. Gensert Associates.
Precast Concrete: Schokbeton-Pittsburgh, Pittsburgh, Pa.

7. IBM Building, Milwaukee.
Architects: Harry Weese & Associates.
Contractor: Selzer-Ornst Co.
Precast Concrete: Aggregate Surfaces, Dearborn, Mich.

8. Research Center, Constitution Plaza, Hartford, Conn.
Architect: Charles DuBose.
Contractor: F. H. McGraw & Co.
Precast Concrete: Glazon Corp., Precast Division, Talcottville, Conn.

9. Behavioral Sciences Building, Harvard University.
Architects: Minoru Yamasaki & Associates.
Precast Concrete: San Vel Concrete Corp., Littleton, Mass.

WHITE PORTLAND CEMENT With the current emphasis on color, texture and pattern in precast concrete construction, architects are specifying ATLAS WHITE portland cement to produce desired effects. This white cement has the same physical properties as gray portland cement. However, its **uniform whiteness** makes it the perfect cement for white, colored or exposed aggregate concrete. When used as a matrix, this cement brings out the color and beauty of exposed aggregate. When coloring pigments are used, it assures the exact reproduction of the shade or tint required.

EXPOSED AGGREGATE The use of exposed aggregate in precast concrete has helped produce concrete surfaces with an esthetic quality. Several techniques are used to manufacture exposed aggregate panels. Basically, however, the following procedure is used.

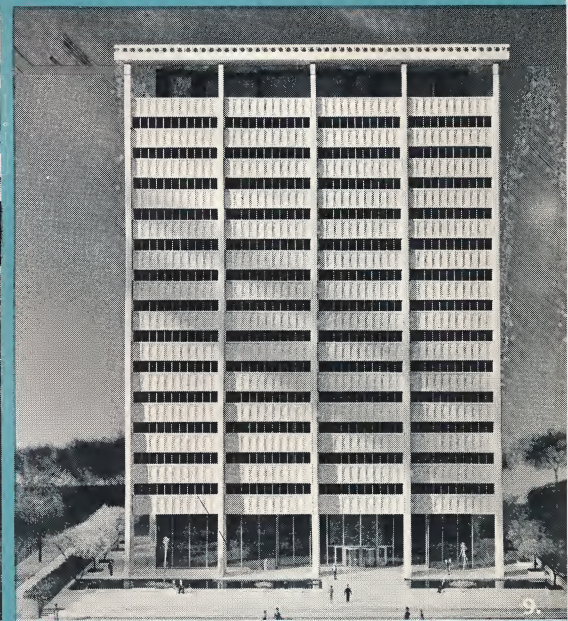
Panels are usually cast face down in forms. The surface of the forms is coated with a retarder so that the cement paste can be later brushed and washed from the surface to reveal the aggregate. The facing concrete is then placed, the mix consisting of **white portland cement**, the coarse aggregate, sand and water. Over this, the reinforcing steel and the backup gray concrete (made with regular or lightweight

aggregate) are placed and then vibrated to produce a dense, strong concrete. After hardening, the forms are stripped and the facing surface is brushed and washed to expose the aggregate. Dilute muriatic acid is usually employed in the final washing and cleaning operation. Final curing then follows.

COLOR Precast concrete can be specified in a wide range of colors because of the variety of aggregates available. Aggregates include quartz, marble, granite, gravel, ceramic tile, glass and various ceramic and vitreous materials. **White portland cement** in the matrix will assure the exact color, even in the darker shades.

TEXTURE The surface finish of precast concrete can range from a glossy, smooth finish to a rugged, coarse texture. Texture is achieved by using aggregate of various sizes combined with grinding, sanding, bush-hammering or by washing back the matrix surface to reveal the aggregate.

SHAPE Due to the plasticity of concrete as it is being cast, unusual shaped panels are easy to produce. They may range from rectangular to square, diamond-shaped, curved or multiplanar. A filigree effect can be created by fabrica-



ting a grille over all or part of the panel surface. Copings, returns, soffits, jambs and sills can be cast integrally with the panels, or cast separately to match the facing panels.

PATTERN Pattern (designs, ornaments, trademarks) can be created in precast concrete by using high and low relief, colored aggregates and contrasting textures. Relief designs of practically any form can be achieved. Both straight-line geometric patterns and free-form shapes are possible.

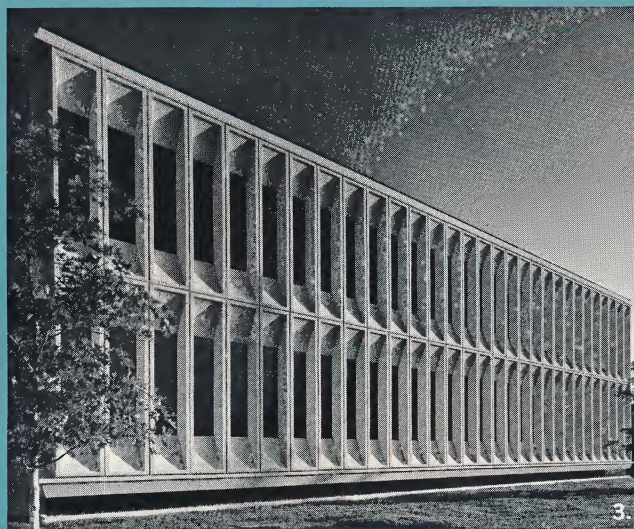
INSULATION When used as a curtain wall, precast concrete can be cast with a backup of lightweight insulating concrete to obtain the desired "U" factor. For example, a panel cast with 5 inches of expanded shale aggregate concrete and a 1-inch surface of quartz aggregate concrete has a "U" value of about 0.34. Additional insulation can also be provided by plastering the inside panel surface with vermiculite or perlite plaster.

The concrete sandwich panel is another type with a low "U" value. These panels are composed of two layers of concrete enclosing a layer of rigid insulation material such as cellular glass, fibrous glass or foamed polystyrene. Typical sandwich units have "U" values ranging from 0.16 to 0.21, depending on the type of insulation used.

STRENGTH Concrete used in precast units usually has a compressive strength of over 5,000 psi when tested in a 6" x 12" cylinder. It is a dense, durable material achieved by utilizing a proper mix design, low water-cement ratios, along with compaction by vibration and adequate curing.

MOISTURE-RESISTANCE Because precast concrete is a high density material, it is highly resistant to moisture, with an absorption of under 5%. Therefore, no additional vapor barrier is required for most installations. A silicon waterproofing agent is often applied to the panel face to further reduce surface absorption. Since the volume change in concrete is comparatively low, panel joints will stay weathertight. After panels are erected, the joints are usually sealed with compounds containing liquid polymers.

FIRE-RESISTANCE Concrete has long been recognized as a material with excellent fire-resistance. It is not only non-combustible, but also serves as an effective fire barrier. Precast concrete units are now being fabricated throughout the country to meet the requirements of local building codes.



1. Commerce Towers, Kansas City, Mo. Architect: Keene & Simpson & Murphy. Contractor: Henry C. Beck Builders, Inc. Precast Concrete: Concrete Casting Co., Div. of Kansas City Concrete Co., Kansas City.
2. Great Hollow Junior High School, Smithtown, Long Island. Architect: Frederic P. Wiedersum Associates. Precast Concrete: Eastern Schokcrete Corporation, New York.
3. Universal Surety Company & Inland Insurance Company Building, Lincoln. Architect: Davis & Wilson and Clark-Enerson-Olsson-Burroughs & Thomsem. Contractor: Kingery Construction Company. Precast Concrete: Nebraska Prestressed Concrete Co., Lincoln, Nebraska.
4. Union County Court House, Elizabeth, N.J. Architect: Joseph Allen. Contractor: Bryan Construction Co., Inc. Precast Concrete: Pre-Cast Concrete Products Co., Caldwell, N.J.

SIZE Convenience in handling, shipping and erection will usually determine the size of precast concrete. Although the average panel size is 20 to 40 square feet, units measuring 250 square feet are not unusual and even larger sizes are practical for many installations.

HANDLING Precast concrete units are usually shipped by truck to the job site. They can be lifted by hoists or cranes directly from the truck into final position on the building frame. Lifting equipment is usually attached to hooks or inserts cast in the back or edges of the panels, welded to or looped around the embedded reinforcing mesh. These inserts double as anchoring devices to install the panels.

ERECTION Panels can be anchored to masonry, wood, steel, concrete or erected as a curtain wall. Except for pointing, cleaning and weatherproofing joints, the panels are finished when erected . . . no other surface treatment is required.

AVAILABILITY Precast concrete panel manufacturers are located in practically every state. Shipping panels within a 200-mile radius is common practice and panels have been transported up to 1500 miles and remained competitive. On large projects or where transportation is difficult, panels can be cast on the job with subsequent savings. However, panels manufactured in plants prove most satisfactory since the greatest amount of control and flexibility can be exercised. For specific details see your local precast concrete manufacturer.

Atlas White portland cements (regular, air-entraining, waterproofed and high-early strength) are available throughout the United States for use in precast concrete, structural concrete, terrazzo, cement paints, stucco, reflecting curbing and markers, masonry units, masonry mortar and grout, swimming pools, etc. For specific information, write: Universal Atlas Cement Division, United States Steel Corporation, 100 Park Avenue, New York, N.Y. 10017.



**Universal Atlas Cement
Division of
United States Steel**